

Horticultural.

The Art of Budding.

Budding is one of the ways of multiplying trees and shrubs, and the best way with the peach, cherry and some others. The work may be begun in July and continued through August and until the middle of September. Trees which complete their growth early must be budded early; those which continue growing late must be budded late. Plum on plum, cherry on morello and an nazzard, and pear on pear, belong to the first class; plum on peach, cherry on mahaleb, the peach, together with pear on quince, belong to the second class. The apple can generally be budded all through the month of August.

The stock, it will be understood, is the young tree or the branch which in budding receives the bud, and in grafting receives the scion, of whatever fruit is to be multiplied.

Generally budding is done near the ground on small trees, but sometimes up in the branches on large ones. The right size of the stock is about one-third of an inch in diameter to about three-fourths; though with a smaller tree may be budded, and a large one, even to considerably over an inch in diameter. The right time is when the stock is beginning to ripen the season's growth, as shown by the formation of the terminal buds.

The first indispensable condition in budding is that good, tolerably firm and pretty well ripened buds of the present season's growth are to be had. The second is that the bark of the stock peels freely. If the bark once begins to adhere it is useless to try. The third requisite is a thin-bladed, very sharp knife, a round point being preferable, but not essential. In addition some moderately strong, soft material will be necessary for tying, to exclude air and moisture until the buds grow fast to the stock. Linn bark has been extensively used by nurserymen for tying; but recently the prepared leaf of one of the palms, *raphia alba*, has been imported largely for the purpose. In a limited way candlewick has been successfully used, and narrow strips of muslin, and (best of the three) woolen yarn.

In preparing the stock of buds care must be taken to cut from a tree of the right variety. It must be a shoot of the present season's growth, and as soon as cut the leaves are to be cut off, allowing about a third of an inch of the foot stock to remain to hold by. It is the best also to cut off three or four inches of the immature part of the shoot. These prepared sticks of buds should be kept in a damp place until used.

In doing the work an upright incision rather over an inch long is made just through the bark of the stock (at a clean, smooth place) and a much shorter incision across the upper end of the first incision; the two incisions looking like a large letter T. The nice point now is to raise the bark (either with point of the knife, or a piece of bone), beginning at the cross incision and working downward, without touching the soft new wood under the bark. If this is touched the stock goes to work at once to heal the injury, instead of healing the bud fast, and the bud withers and then dries up.

The bark being raised, a bud is to be cut from the prepared stock of buds. In doing this the knife should enter about half an inch below the bud and come out three-fourths of an inch above, taking as thin a slice of wood as possible along with it. The small portion of wood may be allowed to remain, as it does no harm; while to remove it takes precious time, with the added danger of spoiling the eye of the bud.

The bud is now to be taken by the foot stick and pushed gently down to the lower end of the upright incision.

The tying begins at once at the lower end of the incision, and proceeds upward, covering every part of the cut but leaving out the point of the bud and the foot stick, though coming as close to these as may be without covering them.

In about a week, if the work is successful, the foot stick will still look green, and when touched will drop off. If on the other hand, it adheres and looks dark, the work has failed, but if the bark still peels freely the budding may be repeated, taking a new place in the stock.

The tying should be taken off in about three weeks or thereabouts, before this if it seems to be cutting into the stock (which often happens if there is good growing weather) it should be loosed and put on again, but not so tightly.

In spring the stock is to be cut off two or three inches above the bud; and the sprouts which would rob the growing bud are to be kept rubbed off until about the beginning of August, when the remaining stub is to be cut off at the bud, with a sloping cut, being careful not to cut the bud, which by that time should be from one to four feet high, according to the strength of the stock, etc.

Some prefer to cut the stock off close to the bud in spring, about the time the bud begins to grow; but although this saves labor it does not do so well, especially if the bud has not been put on very close to the ground.—*National Stockman.*

Fall Planting of Strawberries.

By this we mean the transplanting of runners of the present year's growth, whether it be done in July or October. By care and skill it may be done as soon as the young roots are an inch in length, or even earlier. The rule is, however, that a plant is not old enough to set until it has branched roots; nor is it self-supporting until sometime later. For this reason it is necessary to remove one or more of the leaves when setting out very young plants in the summer, lest more sap be evaporated than the roots can supply. As the season advances, more roots are developed, and there is less risk in the operation. While it is true that the earlier the work is done, other things being equal, the greater will be the crop, it is equally true that plants set early in September, when there is more moisture in the air and soil, usually do better than those set in a hot and dry time. If delayed too late, the danger is that they will not get sufficiently rooted to enable them to resist the effects of alternate freezing and thawing. Young plants in the summer are comparatively tender and sappy, and much more easily injured than when more mature. If taken out of hard ground, the roots may be bruised or broken, and if ex-

posed to the sun or wind for even a few minutes, many of the fine hair roots will be destroyed. For this reason it is not best to take up plants in a dry time. It is better to let them grow where they are until rain moistens the soil so that the roots may be lifted without injury. The later the work is done the closer should plants be set to each other, so that they may fill the row with roots and shade the surface with their leaves. If set twelve inches apart in the row in July, ten inches will be enough in August, eight in September and six in October. The sun should never be allowed to shine on bare ground between plants in the row during the winter or early spring.

The soil for fall-set plants should be rich, so that their roots may find what they need near by, for they have not time to go far after it. It is well to prepare the place a week or two in advance, so as to let the ground get settled. And it is very important that the crown of the plant be not covered.

If the weather be dry and hot after planting, so that the plants wilt, they should get one good watering in the evening and the soil should be stirred the next morning. If this proves sufficient, they should either have some shade during the heat of the day, or the first leaves that will should be removed to lessen the evaporating surface.

If it is desired to test a new variety, the fall is the best time to plant it, for the reason that it will bear the next season and enable one to decide as to its value and give ample time to greatly increase the stock.

Fall-set plants must be protected during the winter. Two inches of straw will answer. Of course the drainage should be such that no water can lie on or near the surface.

Our method when taking up small lots of plants is to drop each one in a pail of water as it is dug, and carry them to a shed where they are trimmed. Large lots are put in a wet sack.

When plants are received in a dry time, it is an excellent plan to plant them temporarily two or three inches apart in mellow soil where they can be shaded and watered. In a few days new roots will be formed, when, after a thorough watering, they may be removed with the soil adhering and set without any check.

We may say here to southern people who wish to buy northern-grown plants, that the best time to do it is late in the fall. They can not get them early enough in the spring, and their summer and early fall are too hot for plants grown in the north.

POTTED PLANTS.

The advantage of potted plants is that they receive little or no check in being planted, even if it is done by an unskilled person. This enables one to fruit a new variety to perfection to nine or ten months after planting. While one may not get a full crop, he will usually get more than he otherwise could. This is important with new, high-priced varieties.

The disadvantages are that they cost more, express charges are higher, and the larvae of injurious insects, as the strawberry-root worm, crown borer and crown girdler are liable to be carried in the pots to the new plantation. This however can occur only in an old bed where these pests are found.

As a rule, potted plants should be used near where they are produced so as to save express charges. If common varieties have to be sent for, it is a good plan to buy layers and pot them on arrival. If the roots are too long they may be shortened. Common layer plants potted in two-inch pots and put in a frame where they may be shaded and watered when necessary will make good potted plants in from one to two weeks. This will save a dollar a hundred on the first cost and nearly all the transportation charges.

We use one-and-a-half and two-inch pots and ship in handled baskets lined with waxed paper and damp moss. The plants are laid on their sides in the pots with moss between the layers, and then each layer is covered with moss and a cloth cover sewed on. One-and-a-half-inch pots run thirteen to the pound, and when filled with damp soil, seven to the pound. There is protection to the roots of a pot plant, while in transit that is nearly as good as the pot in which it grew. One hundred of the smallest sizes weigh about twenty pounds when packed.—*Crawford's Report on Strawberries.*

Storing Celery.

Mr. E. E. Summey, in the *Country Gentleman*, gives the method of storage employed by Mr. Phillip Wall, of Buffalo, who is a large and successful celery grower. The problem of storage is always an interesting one to growers and consumers of celery. Mr. Summey considers it one of the most important details of culture.

Mr. Wall's land is of a sandy, swampy nature, well drained, and capable of producing celery of as fine a quality as comes into the Buffalo market. In order to extend the season as much as possible, he has (after many years of experiment) come to follow the plan of storing about half his crop in trenches out of doors, but well protected, and the other half in the cellar, which is close to the field in which the celery is grown, as on one side a slight elevation which was utilized in its construction. It was dug out along the side of the hill, and which forms one side four feet high, while a stone wall, two feet thick, also four in height, forms the outer side, the ground from the excavation, being thrown up against it from the outside, the rear end being like the front side. The front end, as well as the doors, which open inward, large enough to admit one-horse loads, is made of a double thickness of inch boards, having a space of six inches filled with sawdust; the sides and rear are lined with inch lumber, and boards a foot wide are placed on edge lengthwise on the floor, which represent paths between the celery spaces.

The roof is so made as to combine lightness, strength and warmth; inch boards sawed to a length that would form a span, the peak of which would be two feet higher than the side walls, or six feet from the ground, thus allowing a man or horse to go in without difficulty. After the first board is down, a layer of straw is put on it, thick enough so that when the second board is pressed down firmly the straw will be a foot deep; on the second board another similar layer of straw is placed, which is then lightly covered with matched boards, the cracks of which are well battened also,

in order that no water may soak through. Wherever the soil is not sufficiently porous (as in the case with Mr. Wall's), to allow of the free escape of water from that side of the roof, a tile or other drain should be provided, as no water must enter the cellar. On the other side, the water will take care of itself. At equal distances from the center to the sides an upright support consisting of two by four scantling of the proper length, about five feet long, is set on a brick, while at the top an inch strip four inches wide is run the entire length of the roof, which in this case is 100 feet, 12 supports being used on each side, 24 in all.

In the front and two windows are placed, for in this building celery is prepared for market during the winter, and some light is necessary while it is not sufficient to interfere with the blanching process. In storing the crop, as fast as the plants are dug, some earth being left on them, they are loaded on a one-horse wagon, which is then driven through the centre clear to the farther end where the roots are packed as close together as possible, upright on the ground floor, in the three spaces, the packing being carried forward while the horse and wagon is each time backed out, until the space is filled up to six or eight feet of the door. Thus packed, this cellar will hold between 40,000 and 50,000, and this is marketed almost from Thanksgiving until the forepart of January, after which the trenches are opened and the celery sold off by early spring.

Mr. Wall's land where the celery is stored being of a sandy character affords excellent natural drainage, so that making trenches or other receptacles for storing is only a simple matter of selecting the most convenient place, and then digging to the proper size. In our immediate neighborhood, on the other hand, it is far different, as we have no natural drainage whatever, the soil being not at all sandy and the subsoil an extremely non-porous clay; but a little extra expense for tile, and for digging the trench a little deeper will enable one to overcome the peril of water standing about the plants during the winter. This matter of water while the celery is in storage, we might say for the benefit of more inexperienced readers, is the one important point in the safe keeping of celery, numerous being the instances to our knowledge when the fruit of an entire season's work was completely ruined through not sufficient care being taken to prevent the gathering of water, which completely rots the stalks.

The trench is dug of whatever size is considered the most convenient, the depth being regulated by the length of the celery stalks, the top leaves of which should be several inches above the surface of the soil. The tile is laid along the bottom, and about six inches of soil placed over it and firmed somewhat; the drain of course having sufficient fall to allow the water to be quickly carried off—a fall of an inch to a rod having proved quite satisfactory. As many such trenches can be prepared as may be required previous to commencing to dig the celery, and then the packing will proceed quite rapidly.

For protection during the winter (the storing not being done either in cellar or trench until danger of severe freezing) the trench-celery is first covered with a thin layer of leaves or straw, and as the weather becomes colder the covering is gradually increased in thickness, until by the time hard winter weather is at hand the cover will be about two feet thick.

We may add that the estimated cost of this house was something over \$100. Hemlock lumber, rough but good, of good quality and matched, was used for the roof—requiring something over 5,000 feet. The sides, ends and walks use 1,350 feet, while the scantling for roof supports measured 250 feet, making a total of 6,700 feet, the price per thousand being \$12. The cost of erection is but slight, but of course will differ in various localities, as will also the price of lumber. For the stone wall no special expense was incurred, as the stones were right at hand and no skilled labor was required to put it up; of course where stone must be purchased, such item must enter into the calculation.

The Best Early Pea.

E. J. Brownell, in the *Orange County Farmer*, says of the Alaska pea, recommended as an extra early variety, and which he tested this year quite fully:

As to quality we have found them the best of any extra early pea we have ever used unless it be the American Wonder, and this sort with us has proved very unsatisfactory as a yielder besides being several days later in coming fit for the table.

The Alaska from my experience will out yield the old fashioned dwarf or Tom Thumb varieties two to one and in point of quality these are not worthy of any comparison with this sort. In fact it is best in cooking quality of any smooth pea we have ever tried, being little if any inferior to the wrinkled sort.

It however needs to be sown on very rich ground and even then well manured to give the best results. It being a semi-dwarf variety it will from my trials with it stand any amount of fertilizer that may be given it, and if sown very early the yield unless the season is very dry will be increased in exact proportion to amount of fertilizer used.

On the 11th of April I spaded up a space in the richest portion of my garden exactly three feet in length by nine feet wide, and on this sowed five rows of Alaska peas, sowing them very thickly and to the width of three or four inches in the row, and when they came up they measured exactly eight feet from outside of the rows so it will be seen that they formed a very dense mass of vines, completely shading the ground when fully grown.

I hoed about them, stirring the surface well when they first appeared above the ground, and again when they had grown to the height of some three or four inches I hoed them carefully, mulched the whole surface between the rows heavily with coarse horse manure and brushed them with brush four feet high. Thus treated they grew to the top of the bush, many of the vines considerably above, the taller reaching a height of about six feet. I measured some vines which were six feet and six inches tall.

June 21st gave us the first mess fit for the table, and contrary to the experience with this variety as reported from the Ohio Agricultural Experiment Station where 88 per cent of the crop were ready for use at the first picking, these continued to grow and

blossom so that we had peas from this same plot, continuously, at intervals of a few days, for more than three weeks. We kept an account of the number of quarts we picked and in all obtained from this small piece of ground, which it will be observed is less than the 19th part of an acre, a yield of 104 quarts or 8 1/4 bushels of green peas, or a little over the rate of 630 bushels per acre.

Now those who object to plot experiments will, of course, say that nothing like these results can be obtained in field culture, but I can see no reason why, under similar conditions, something of proportionate results might not be expected. This was not designed primarily as an experiment to show what I could do for the sake of reporting to the press, but the peas were thus sown and cared for with reference to getting the best yield I could for family use, which is my aim in the whole culture of my garden.

On another small plot sown about a month later (about May 10th) on nearly as rich soil with rows about two feet longer than the first, of nearly all the peas, fully eight per cent at least, were fit for use at the first picking and the vines did not reach a height to exceed from 2 1/2 to three feet and when picked we only obtained eight quarts from each row.

This is certainly a surprising difference in yield when we consider the fact that the variety is the same and from the same lot of seed, the soil very nearly the same and the only difference in treatment that the latter were planted so much later and the rows not as close together, being about three feet apart or nearly that, and the surface was not mulched with manure after hoeing.

I shall not attempt to account for this difference in yield, but will only say that I shall continue to depend on this variety for a first early pea until I find something I believe to be better, but shall not hereafter plant them for later use, as other kinds give better results later in the season.

Pegging Down Roses.

Pegging down roses is a new way of making gardens more interesting and beautiful. Beds, borders or groups of hardy, vigorous growing roses can be treated in this way with considerable success. The long shoots of last season's growth, if left to stand, will only flower on the extreme upper ends, or if pruned back their grace and beauty are literally lost; by pegging them down to the ground, however, they will flower their whole length. A strong shoot will always spring up from where the vine is pegged down, which in turn can be pegged down by another season, and the old shoot cut away. This operation repeated year after year, makes a nice rotation—one year of growth, another of flower, and then the shoots are cut away. Abundance of rose blooms will be the result of this method of training the vines. Some varieties of roses make from six to eight feet of shoots in one season, and there is no more beautiful sight than to see them bearing flowers their whole length. Many quiet nooks in the garden can be filled in with pegged down roses, and positions right under the window will look well treated in this way. Beds of pegged down roses can be made so that not an inch of the ground is visible, and the effect is very striking. Many of the delicate bearers will often produce a flower at every bud along the shoot when treated in this way, while only one flower at the point of the shoot will be produced when the stalk is tied to a stake. If this phase of rose growing was more generally practiced in our gardens, there would be fewer dwarfed and sprawling vines that are ungraceful to the eye and unprofitable to the grower. Some of the most artistic gardeners can be accomplished in this way, especially in the way of making neat borders around or in front of the house.—*New England Farmer.*

A MASSACHUSETTS report says the immense apple crop of last year is succeeded this year by a comparatively short yield in the apple belt. The English crop is light and an active demand is expected to be made on America. The promise in New England, New York and Michigan is for only 65 per cent of a full crop. In New York the quality is very poor. English dealers are reported to be buying the fruit on the trees in the eastern States.

FLORICULTURAL.

SEEDS of *Dianthus* or garden pinks, which belong to the same family as the carnation, if sown this month make nice plants for early blooming next summer. They are desirable plants for the garden and for bouquets.

If you want nice pansies, be generous. Cut the blossoms freely, and let no flowers go to seed, and the plants will bloom much longer and give finer flowers. Sweet peas, if cut every day, will bloom throughout the season, but if allowed to form seed, the season of bloom is quite short.

TRAIN up one of the tropaeolums, or climbing nasturtiums, to a stake. The plant is not naturally so much a climber as a creeper, but with a little encouragement in the way of tying, as we all know, it climbs very well. By attaching it to a stake and tying the new growth every two or three days, curling it about the support, a vigorous plant will climb several feet in a season, and as it rises, form a beautiful green cylinder of foliage about the stake, through which its brilliant blossoms will show here and there in a very attractive manner.

THOUGH so slender and delicate-looking a vine, the climber, when well established by two or three seasons' growth, is a very hardy plant, and will stand the average winter perfectly well without protection. Allow it to remain on the trellis, therefore, and though it will look dried up and dead in the spring don't be discouraged but let it alone. It will astonish you some day by bursting that dead-looking skin, which you were tempted to cut away, and gradually pushing out from every black-looking bud a bunch of its peculiar green foliage. If not interfered with it will slowly extend itself from year to year until it has covered quite a large space. When in blossom it is well to go over it every two or three days with the scissors and cut out the feathery little seed pods from which the blossoms have fallen to prevent their per-

fecting seed and weakening the plant. This will prolong the period of blooming. When over, the vine may be cut back a little to induce fresh shoots and a second crop of flowers later.

Horticultural Items.

THE Haverland strawberry seems to have done pretty well this season, judging from the good reports we have seen from those who have fruited it.

THE time to sow spinach for fall use is in August. If it is to stand all winter, sow in September. It is easily kept out of doors all winter, ready to start into growth as soon as the frost is out of the ground.

THE Inter-Ocean says there are 62,000 women in America interested in the cultivation of fruit, and among them are some of the most successful orchardists in California. Last year one woman made a profit of \$1,000 by raspberry culture.

BRavo, Allegan County, which a former resident is alleged to have said was made from a handful of sand, the Almighty had left after creating the universe, may yet become a great peach country. Seven hundred acres of the pine land in the vicinity are being cleared and set to peach trees. The neighbors are a trifle skeptical as to results, but are willing the man should try the experiment.

A SOUTHERN paper says it is much to be regretted that the Kieffer and La Conte pears, from which so much has been expected throughout the South, should this year have shown unmistakable signs of blight. A scientific examination proves the existence of blight in the older orchards of Georgia and Florida, where some trees have been killed outright, while in some other States they have suffered to a greater or less extent.

It is quite interesting to note the prices for fruits and vegetables in the London, England, markets. *The Horticultural Times* of the 10th inst., quotes tomatoes at 4 1/2 to 5d., or nine to ten cents per pound; peaches 50 cents to \$1 per dozen; pears, \$1 to \$2 per bushel; cherries, 12 to 15 cents per pound; radishes, 25 to 37 cents per dozen; potatoes 50 cents to \$1 per cwt.; cucumbers, 25 to 50 cents per dozen; French beans, 62 cents to \$1 per half-bushel, and peas 50 cents to \$1.25 per bushel.

J. K. HOYT, of North Carolina, says that of 18 varieties of grapes in his vineyard, trained under the Kniffin system, which admits plenty of air and some sunshine directly upon the fruit, not one has been attacked by rot. Hence he thinks the method of training the vines may have something to do about keeping the black rot under control. He strongly insists upon the removal and destruction of berries affected by the rot, the diseased fruit always spreading the disease.

WHERE celery is grown for market, by far the best way is to apply manure so liberally to the entire area that manure is not needed in the furrow. Any land which will grow a crop of corn will suit celery, while on clay land, well underdrained, it is reputed to be of a far greater quality; but any one on nearly any kind of soil may readily grow his home supply. The soil which should be the first choice on which to grow celery for market, would be that which is largely of a mucky nature, provided that it could be well drained, either by means of surface ditches or tile laid underground; where the drainage of such land is impossible, do not try to grow celery, for even if it yields a crop it will be of poor quality, it is very liable to rust where the roots are in wet, soggy soil.

AN English fruit-grower asserts summer pruning has done more harm to fruit trees than can well be estimated. He says: "No matter what books may say as to the time of summer pruning, no fixed time can be laid down for the operation. Many things have to be considered before the knife is allowed to touch the trees. Many will go on and on without a thought as to the state of the roots, whether they are dry or wet. If the roots are dry, and the trees be summer pruned, and rain and warm weather ensue, those trees will burst into growth, which, owing to its unripeness, will probably perish in the winter, because of untimely birth. Nature, if left to herself, would have kept the buds dormant until next season, but the 'aes,' with cold steel, spoils it all. I say to amateurs and others who have fruit trees in any form, beware of summer pruning, unless one who studies nature is at the back of the knife."

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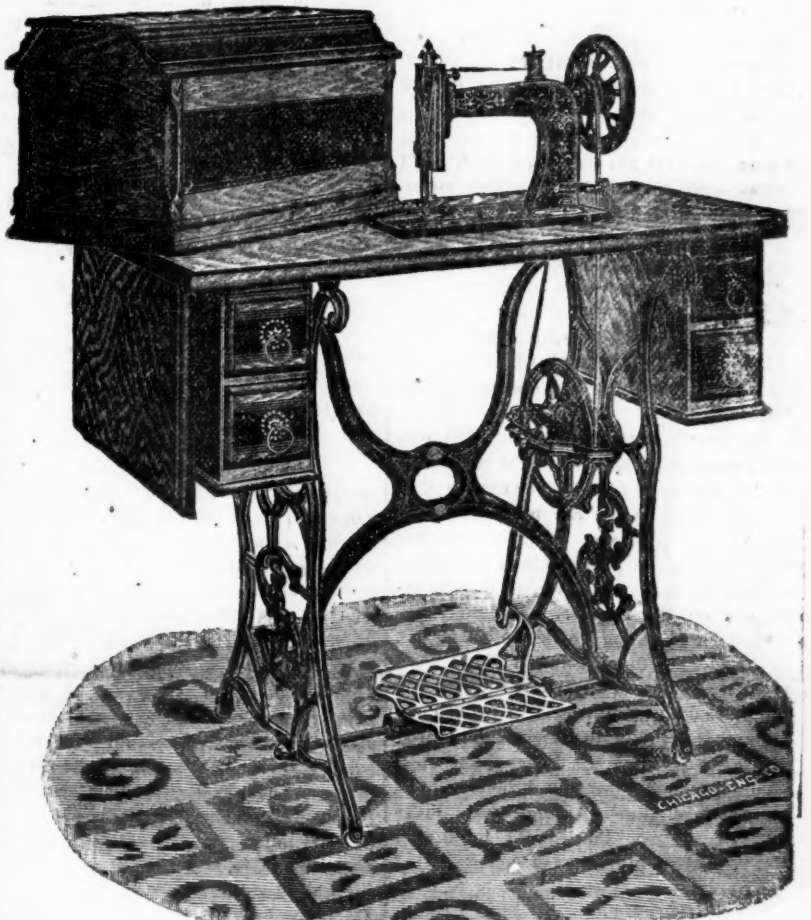
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88—Summit Poultry Farm.—'88

Barred Plymouth Rocks

—AND—

LACED WYANDOTTES.

A large and fine stock of Plymouth Rock breeding cockerels and pullets for winter sales. Also a few very nice Wyandotte cockerels.

Eggs for hatching from either variety at \$2 per 12
or \$3 for 26. Address
C. F. R. BELLWS,
06-2 **YPSILANTI, MICH.**



Good Improved Oastery
have been crowned
King in the Show King

On the farm with you may be seen a very fine flock of Shropshire sheep. For circular containing full particulars address
S. E. TODD, Watman, O

CLYDESDALE
SHEPHERD PUPS, males \$4.
Females \$3. To be paid for when
delivered. Enclose stamp.

Cleveland Bay Horse Company
(INCORPORATED)
PAW PAW, - MICHEL



CLEVELAND BAYS,
representing the leading popular families and of
great individual merit,
FOR SALE.
All our horses guaranteed breeders and perfectly sound. Half-bloods for family horses supplied on demand.
We Shall Exhibit at State Fair and Detroit Exposition.

DR. E. W. BARTRAM, Manager,
G. E. GILMAN, Secretary.

The Depot for English Horses,

The Largest Stud in England.

Shires, Clevelands, Yorkshire Coach and Hackneys.
Stallions and mares. Over 100 always on hand. Horses from this stock received high honors at all the leading American fairs. Catalogues on application.
JAMES F. CROWTHER,
Stud Farm, Mirfield, Yorkshire, England.

Shorthorn Bulls for Sale

A Good Lot to Select From and of Various Families.

Choice bred young Shorthorn Bulls, of several families and different ages, for sale at reasonable prices. Catalogue on application. Call and see them or write for particulars.

WM. STEELE,
IONIA, MICH.

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Shorthorn Bulls For Sale.

Stop at the Grand Palace of Education 1892.

sired by proud Duke of Fairview 5723, and
 Lord Barrington Hillhouse 63431, out of Young
 Mary, Phyllis, Lady Elisabeth, Peri Duchess and
 Rose of Sharon cows. Also a few cows and
 heifers. Reliable catalogues always on hand for
 distribution.
 WM. CURTIS & SONS,
 Addison, Lenawee Co., Mich.
 Addison is on the new Michigan and Ohio
 Railroad. Farm connected with State Telephone

Two good young Shorthorn bulls. One a Knightly Duchess, sired by Barrington Duke 7th 72607, calved March 31, 1888. The other a Renick Rose of Sharon, also sired by Barrington Duke 7th 72607. Both red. Breeding without cloud or blemish. Address

C. E. WAKEMAN,
PONTIAC, MICH.

Wolverine Stock Farm!
AMOS PARMENTER, Prop.,
American Merino Sheep and
Poland-China Swine.
VERNON, - - MICH.

I began breeding Fokks and Dutch in 1868. My purchases have all been from the herd of L. W. & O. Barnes, and of their breeding, except the boar Black Success, bred by E. J. Kiever. I have now for sale some extra pigs from Barnes' Luck, Luck Again, and Black Success. Pigs not
skin. 1818-19

Continued from first page.

tion of butter by mixing foreign oils with it. When coloring matter cut with oil is used, a foreign oil is introduced which, as far as it goes, adulterates the butter. No matter if the quantity is so small that it cannot be detected by the consumer, or that it may be even an improvement to the butter. The law makes no provision or exception as to quantity, nor as to the use of oil in any way in coloring matter, nor even as to coloring at all. Under pretense of coloring butter, any quantity of foreign oils may be introduced. If the law permitted the use of a little oil, it would be necessary to specify how much, or to designate a standard for coloring, beyond which the amount of oil may not go. And even this would open the door to rascals, who might become so numerous in the excessive use of foreign oil that it would take an army of detectives and chemists to keep them in subjection. The only safety in this case is in perfect prohibition.

The substitution of oil for cutting the coloring matter does not, in our judgment, make the case practically better, so far as the quality of the butter is concerned. We would rather have a foreign oil than a foreign alkali put into our butter, saponifying it, as far as it has any effect—and all to deceive the eye, without even a pretense that the butter is in any other way improved by the artificial color.

Artificial coloring is resorted to for the purpose of covering up some real lack or defect in the butter, caused in many cases by lack of food, improper feeding, and by the bad condition of the cows. A starved cow's cream makes the whitest kind of butter, which is the poorest kind of stuff. But coloring makes it look all right, and retards the natural process of ripening. There is no wrong perpetrated, in such cases, by coloring. Cows well fed, sheltered and cared for will, nine times out of ten, make butter of sufficiently high color to meet the most aesthetic eye. Would not the prohibition of artificial coloring have a tendency to cause the better feeding of and care for dairy stock, and the making of better butter? Would it not lead to a general improvement of the dairy herds of the country? We believe it would.

Salt for Dairy Stock.

We have never had any doubt of the importance of free access to salt by dairy stock. But we now and then meet with people who think salt an injury to both animals and men, and some have gone so far as to deprive their animals of salt altogether, except what they derive from the food they eat—very kind of which contains at least a trace of common salt. Lack of salt for cows need not be considered a cause of bad churning, and is now so considered by many good judges, who at once administer salt to their cows as a remedy for the evil. But in earlier days dairymen had not yet reached the point of keeping salt constantly within reach of their cows, so that they could at will help themselves. All these early notions were founded on tradition and loose observation; but it is interesting to note how closely they agree with modern scientific conclusions. The experiments of European nations—notably of the French—seem to have definitely determined the value of salt for all kinds of stock. Modern observers have reached the conclusion that salt is necessary to the best health and performance of the cow. Prof. Robertson, of the Guelph Experiment Station, Ontario, Canada, says a series of experiments convinced him that to deny cows salt for even one week reduces their flow of milk 14% to 17% per cent. in quantity and lowers the quality. Milk given when the cows are deprived of salt, he says, will sour 24 hours sooner than that given when they have a full supply of it. It is greatly relied by all animals, which is strong presumptive evidence in its favor, and there cannot be a reasonable doubt, at this late day, that salt is beneficial to them.

Wartles in the Dairy.

The question as to the extent of the injury to the dairy from the presence of the wartle fly is receiving some attention, and the *Farmers' Review* is publishing a series of instructive articles on the subject of the wartle fly and its ravages. There appears to be some dispute as to what causes these wartles. Webster says in his dictionary that a wartle is "a small tumor produced by the larva of the gadfly in the backs of horses and cattle." But it appears that it is not the gadfly that deposits the eggs that hatch the grubs in the backs of bovine animals, but a quite different fly, and that it does not attack the horse at all. All have noticed the grubs, but hardly any one knows the fly that produces them. Animals poor in flesh are most afflicted by them, but whether this is the result of the poverty or the cause of it is not known. Certain it is, however, that wartles cause great suffering and sometimes death. They are not so common in this country as in Great Britain, where they are a great pest, but they appear to be increasing here, and in some sections are quite common. That the suffering caused by wartles, with all its attendant evils, would have a very deleterious effect on a herd of dairy cows, and greatly impair its usefulness, there cannot be a doubt. Dairymen should therefore be on the watch for the pest, and use the preventives and remedies in time. These are whale and kerosene oil, to either of which may be added carbolic or sulphuric acid in small quantity. Occasionally apply during the fly season freely with a brush along the spine and its sides. "A word to the wise is sufficient." Watch for the wartle fly.

Fogel Sound and Washington Territory. Colonists going to Tacoma, Olympia, Seattle, Port Townsend, Victoria or any other point in Washington Territory or on the Puget Sound, will find it to their interest to patronize the Union Pacific Railway, "The Overland Route." Free Second-class Pullman sleeping cars with all the modern equipments for comfort and luxury run daily from Missouri River points to Portland, Ore., without change, making connection for all the above specified places. Address the undersigned for pamphlets, rates and general information.

W. H. KISTNER, General Agent,
191 So. Clark St., Chicago, Ill.

Veterinary Department.

Conducted by Prof. Robert Jennings, Veterinary Surgeon, Professional Address through the columns of the Michigan Farmer to all regular subscribers. The full name and address will be necessary that we may identify them and their communications should be accurately described to ensure correct treatment. No questions answered gratuitously by mail. Accompanied by fee of \$1.00. Private Address, No. 301 First St., Detroit, Mich.

Injury of the Spine in a Yearling Filly.

RECEIVED, Mich., Aug. 24, 1889.
Veterinary Editor of the Michigan Farmer.
I have a brown mare colt one year old the third of last June that I found down between two logs in the pasture lot August 7th. There was a hollow between the logs, and I think she stepped over one and stumbled and fell, and laid with her shoulders against the log behind her, and her hind legs higher than her body, so that her body was twisted. She had not been down over seven hours when discovered, and the logs were moved away, but she could not get up. We had to haul her up to the barn, and on the 17th of August we made a frame and swung her onto her feet, and have kept her standing most of the time since. For the past three or four days we have taken her out and moved her round. She walks all right, but her shoulder joints snap when traveling. Yesterday we let her loose, and she trotted or galloped about as well as any horse, but when she lies down she can't get up—seems to be weak in the back. Have been using liniment made of saltpetre and vinegar. Is it best to keep her on her feet all the time? What is best to do for her, and can a permanent cure be had? Her right hip (the side she laid on) is somewhat bruised, just below the bone that is sometimes knocked down and commonly called hipped, a slight swelling exists at the bruise and runs toward the ribs, which is a little sore to the touch. By answering the FARMER you will greatly oblige
A SUBSCRIBER.

Answer.—The character of the injuries received by your colt, as indicated in your report, involves the spinal column either by fracture of one or more of the vertebrae, or bones of the back, or from injury of the surrounding tissues, not sufficiently severe to cause myelitis, or inflammation of the spinal cord. Evincing lameness is the best application known to us in any such case. If you cannot get it, have your druggist make the following liniment for you: Spirits turpentine, one pint, saturated with camphor gum; then add two ounces tincture of opium; mix for use. Apply once or twice a day. It is very doubtful if keeping an animal so young in slings in such cases is good practice, particularly in hot weather. We have witnessed in our long practice more injury done by placing young animals in slings than benefit received. A horse with a broken leg, properly splinted and turned loose in the field, like a dog, will take care of the injured leg, and carry it clear from the ground until the bone is properly united and he can bear his weight upon it without inflicting pain. This has been our policy for years with satisfactory results. The snapping of the joints is due to deficient secretion of the synovial or joint oil, leaving the joint comparatively dry. Apply the following liniment: Proof spirits, one pint; pulv. camphor, one oz.; capsicum, powdered, one oz.; castile soap shavings, one oz.; cloves, pulv., two drachms. Mix altogether for use. Apply with hand friction two or three times a day. Apply also to the bruised muscle below the hip. Nature will do the rest.

Fits in Pigs.

RECEIVED, August 26, 1889.
Veterinary Editor of the Michigan Farmer.
Last fall I had some pigs which I weaned when they were five weeks old and began feeding them bran and middlings. In a short time they commenced having what I should call fits. They would come to the trough, eat a little and then fall down and tremble all over. In a few minutes they would seem all right again. After a few fits they would die. I succeeded in saving but one, and he has not grown any to speak of since he had the fits. He has had a bad cough all summer, but thinking nothing of that I turned him with some spring shoats. Nearly all of them now have the same cough. If you can enlighten me on the cause and cure, it will be thankfully received.
CHAS. B. EIKES.

Answer.—The cause or causes of fits in the pigs are indigestion, worms, eating poisonous substances, morbid conditions of the brain, etc.; cough from various morbid conditions of the lungs and air passages, consisting in a convulsive motion of the lungs, being an effort of nature to throw off some offending substance from the air passages. This trouble, when not chronic, will sometimes yield to the simple treatment of giving cold bran mash with a little linseed flax mixed in it. Unless a pig will take medicine in his feed it is folly to attempt forcing him to do so, as more harm is often done from his persistent resistance to taking anything forcibly, not unfrequently choking the animal to death in the attempt to give it.

Commercial.

DETROIT WHOLESALE MARKET.

DETROIT, August 30, 1889.
FLOUR.—Minnesota grades have declined, as has also No. 7. No other changes. Quotations on car-load lots are as follows:
Michigan roller process..... 3 00 @ 4 00
Michigan patents..... 4 00 @ 4 50
Minnesota patents..... 4 00 @ 4 50
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